UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,203	10/16/2003	Makoto Yoshida	FJST 33	7165

61650 7590 09/07/2007

MYERS WOLIN, LLC
100 HEADQUARTERS PLAZA
North Tower, 6th Floor
MORRISTOWN, NJ 07960-6834

EXAMINER	
AHN, SAM K	

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
09/07/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

harris.wolin@myerswolin.com
brian.myers@myerswolin.com
mail@myerswolin.com

Office Action Summary	Application No.	Applicant(s)	
	10/687,203	YOSHIDA, MAKOTO	
	Examiner	Art Unit	
	Sam K. Ahn	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2-24* is/are allowed.

6)☒ Claim(s) *1* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see p.12, filed 06/16/07, with respect to the rejection(s) of claim(s) 1 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Shirakata et al. US 6,993,083 B1 (Shirakata) in view of Nakada US 7,020,116 B1 and Scarpa US 2004/0001563 A1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakata et al. US 6,993,083 B1 (Shirakata) in view of Nakada US 7,020,116 B1 and Scarpa US 2004/0001563 A1.

Regarding claim 1, Shirakata teaches a receiving apparatus (receiver incorporating a demodulator in Fig.1, note col.11, lines 15-17) in an Orthogonal Frequency Division Multiplexing (OFDM) system (note col.11, line 67) for receiving a transmitted signal (a signal transmitted is received via input to 101 in Fig.1), said apparatus comprising: a receiver (receiver incorporating a

demodulator in Fig.1, note col.11, lines 15-17) for receiving a signal that has been transmitted (transmitted signal with a direct wave in Fig.6(a); and a delay-profile measurement unit (Timing Determination Device 109 in Fig.1) for measuring a delay profile of a delayed wave having a delay greater than the guard interval of the data symbol by calculating correlation between the received signal and a known signal (measuring the delay profile by correlating the received signal output of 102 and output of synchronous symbol generator 106, and with the measured profile illustrated in Fig.6(f), the peak with C interval is selected, and further the second delay wave (c) has a delay greater than the GI of the Synchronous Symbol and Symbol 1, note col.15, lines 5-7).

Although Shirakata teaches receiving a transmitted signal (a signal transmitted is received via input to 101 in Fig.1), Shirakata does not explicitly teach receiving a transmitted signal that is the result of adding a guard interval onto a signal obtained by IFFT processing and then transmitting the signal.

Nakada also teaches an OFDM system (note col.1, line 27) transmitting and receiving signals with a guard interval (see Fig.23), wherein the transmitted signal is the result of adding a guard interval (guard interval addition unit 53 in Fig.5) onto a signal obtained by IFFT processing (IFFT operation unit 52) and then transmitting the signal (transmitting the final output of Fig.5, note col.3, lines 7-9). Nakada further teaches that guard interval is inserted to the effective data symbol in order to reduce the influence of delay waves, hence obtains a more robust OFDM system, note col.1, lines 50-65. Hence, both Shirakata and Nakada

teach an OFDM system wherein the received signal incorporates a guard interval, as previously explained, wherein Nakada further suggests that the guard interval is added during transmission on the signal obtained by IFFT processing. One skilled in the art at the time the invention was made would recognize that the system of Shirakata may as well perform the guard interval addition unit from the signal obtained by IFFT processing. IFFT processing well-known to one skilled in the art at the time the invention was made of processing time domain signals to frequency domain signals, and is critically important in an OFDM system in order to divide the carrier into plurality of subcarriers, which is also admitted as being prior art in Fig.49A of the instant application. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Nakada in the transmitter of Shirakata by transmitting the signal by inserting the guard interval on the output of IFFT processing for the purpose of dividing the signal into frequency domain and inserting guard interval into each of the subcarriers hence reduces the influence of delay waves and obtains a more robust OFDM system, as taught by Nakada, note col.1, lines 50-65.

However, Shirakata in view of Nakada do not explicitly teach wherein the making the length of a guard interval added onto a known symbol larger than the length of a guard interval added onto a data symbol.

Scarpa teaches wherein the making the length of a guard interval added onto a known symbol larger than the length of a guard interval added onto a data symbol (note paragraph 0004 and see Fig.1). Scarpa further suggests that this

implementation is a standard of 802.11a to protect from distortion due to multipath (note paragraph 0004). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Scarpa in the system of Shirakata in view of Nakada of implementing wherein the guard interval in the preamble or pilot is longer than the guard interval of the data for the purpose of conforming to standard of 802.11a and to protect from distortion due to multipath (note paragraph 0004).

Allowable Subject Matter

3. Claims 2-24 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn
Patent Examiner

8/29/07